Guidelines for the Management of Malignant Ascites

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Introduction

Ascites is an accumulation of fluid within the peritoneal cavity of the abdomen and can occur in association with many conditions such as cirrhosis of the liver, congestive cardiac failure, protein depletion and malignancy.¹

Symptoms of ascites can be distressing and include abdominal distension, abdominal pain, nausea, vomiting, lower body oedema and breathlessness.² The commonest causes of malignant ascites are primary tumours of breast, colon, ovary, stomach, pancreas and bronchus.

Two main mechanisms underly the development of malignant ascites: peritoneal cancer and portal hypertension. With peritoneal cancer the peritoneum becomes leaky and the ascites is an exudate with a relatively high albumin concentration and a low serum/albumin ascites gradient (SAAG). Gradients of <11g/L indicate an exudate and diuretics are less likely to be helpful in these patients. Portal hypertension is most commonly associated with massive hepatic metastases or cirrhosis. With portal hypertension, the ascites is a transudate and there is a high SAAG. Gradients of >11g/L indicate a transudate and it is often worth trying diuretics in these patients post drainage to slow the rate of reaccumulation.³

Malignancy-related ascites (other than ovarian carcinoma responsive to chemotherapy) usually carries a poor prognosis.⁴ Therefore, the guiding principle for management of malignant ascites should be aimed at relieving

symptoms, should not add to the patients' burden and should be minimally invasive.

Treatment

For most patients, paracentesis is the treatment of choice and relieves symptoms in up to 90% patients. For some patients diuretics have a place in controlling rate of reaccumulation of ascites.

If the prognosis is short and the patient is rapidly deteriorating, there is no indication to treat the ascites. If the prognosis is short but patient has troublesome symptoms, consider a brief paracentesis of 1-2 litres to reduce discomfort.

If the patient is known to have ascites before it is significantly symptomatic, diuretics should be considered. If the patient presents with a tense abdomen, the drainage should be performed, including taking a sample of ascitic fluid to measure albumin content. The patient should be considered for a trial of diuretics after the procedure. The patients most likely to respond to diuretic therapy are those with liver metastases and resulting portal hypertension. They will have a serum-ascites albumen gradient of >11g/dL and this can be used as a guide to the likelihood of response to diuretics.⁵

Paracentesis

Paracentesis is the technique used to drain a collection of ascitic fluid by inserting a fenestrated catheter into the peritoneal cavity.⁶

Procedure

1. The patient should be admitted as an inpatient for the first procedure. Uncomplicated follow up procedures can be arranged as day case and in some situations, eg. for symptom relief in terminal care, paracentesis can be carried out in the home setting.

- 2. The procedure and potential complications should be explained to the patient and carer and written consent should be obtained. It should be noted that with appropriate caution, paracentesis is a very safe procedure, but there are potential complications such as hypovolaemia and shock, increased abdominal pain following the procedure, and rarely, perforation of bowel or blood vessel by the drain leading to peritonitis or haemorrhage.
- 3. Platelet count and clotting studies should be checked before the procedure is undertaken. Stop routine anticoagulation 48 hours before the procedure. INR should be 1.5 or less to safely proceed. Baseline observations of BP and pulse should be recorded.
- 4. The patient should have an abdominal examination immediately prior to the procedure with confirmation of clinical diagnosis of ascites: abdominal distension, flank dullness, shifting dullness, fluid thrill. Exclude other causes of abdominal distension such as hepatomegaly, abdominal tumour, bowel obstruction, gaseous distension. If any doubt exists, or the patient has previously been noted to have loculated ascites, arrange ultrasound scan with marking of maximum collection of ascites.

The preferred method of drainage is to perform paracentesis using a Bonano suprapubic catheter. Other methods include a trochar, large bore venflon or peritoneal dialysis catheter.

Puncture sites should be away from scars, tumour masses, distended bowel, bladder, liver or the inferior epigastric artery that runs 5cm either side of the midline. The best site is in either iliac fossa (but left ideally) at least 10cm from midline.

- The patient should empty their bladder and then lie as flat as possible for the procedure.
- The puncture site should be infiltrated with 2% lignocaine and a green needle can be used to withdraw a small amount of fluid to check that ascites is present and to send a sample for a serum/ascites albumin gradient. (See introduction)
- The Bonano catheter is inserted using aseptic technique and is connected to a catheter bag for drainage.
- If the patient is normotensive prior to procedure, ascites should be allowed to drain freely. In malignant ascites it is safe and effective to drain up to 5 litres over the first 4 hours without intravenous fluid replacement.⁷ If significant ascites is still present after 4 hours, clamp the tube and allow 1L per hour maximum to drain until drainage slows to a minimum. Most patients will have their tube removed within 24 hours.
- There is no evidence to support intravenous albumin replacement in malignant ascites.
- If the patient is dehydrated and/or hypotensive (systolic <100 mmHg) prior to procedure, support with 0.9% N saline IV during drainage. Hourly T/P/BP obs to be carried out for the first 4 hours. If patient becomes hypotensive during procedure also consider use of 0.9% N saline IV. After 4 hours, obs measurements to be recorded as clinically indicated.

- When the drain is removed a dressing pad or stoma bag can be applied to the drainage site. Any residual leakage usually settles within 2-3 days.
- The patient can be discharged a few hours after drain removal or the following morning depending on their general condition.

6. When symptoms return, repeat paracentesis can be arranged if appropriate. Remember that repeat drainage will result in steady loss of albumin and, therefore, lower serum albumin with resulting peripheral oedema.

Diuretics

Spironolactone should be considered if the patient is likely to live for several months and the serum/albumin gradient is >11g/L. Elimination of the ascites takes up to 4 weeks ⁸ during which time patient should be closely monitored.

- 1. Measure baseline urea and electrolytes
- 2. Measure abdominal girth and weight prior to starting diuretics
- 3. Start with spironolactone 100-200mg mane
- Increase dose by 100mg every 5-7 days to achieve a weight loss of 0.5-1kg/24hours
- 5. Typical maintenance dose is 300mg mane
- 6. Consider adding furosemide 40mg mane if desired weight loss not achieved after 2 weeks
- Monitor U&Es carefully as electrolyte disturbance and hypotension may occur. If renal impairment occurs or patient not tolerating diuretics, stop
- 8. If diuretics do not achieve satisfactory reduction in ascites, stop

Other treatments

Indwelling catheters and peritonovenous shunts have been used in patients with a prognosis of >3 months. There is no evidence to date to show added benefit over repeated paracentesis. Systemic and intraperitoneal chemotherapy has been used but, other than in chemosensitive ovarian carcinoma and lymphoma, no benefit has been shown.

¹ Regnard C, Hockley J. Ascites. In, *A Clinical Decision Guide to Symptom Relief in Palliative Care*. Oxford: Radcliffe Medical Press, 2003, p1-5.

² Keen J, Fallon M. Malignant Ascites. In, *Gastrointestinal Symptoms in Advanced Cancer Patients*. Oxford: Oxford University Press, 2002. p279-90.

³ Twycross R. Guidelines for the management of malignant ascites. In, *Advanced course on pain and symptom management* 2004. p2.10-2.11

⁴ Garrison RN, Kaelin LD, Heuser LS, Galloway RH. Malignant Ascites. *Annals of Surgery* 1986; **203**: 644-51.

⁵ Runyon B, Hoefs J. Ascitic fluid analysis in malignancy-related ascites. *Hepatology* 1988; **8:** 1104-1109.

 ⁶ Campbell C. Controlling malignant ascites. *European Journal of Palliative Care* 2001; 8: 187-190.
⁷ Stephenson J, Gilbert J. The development of clinical guidelines on paracentesis for ascites related to

malignancy. *Palliative Medicine* 2002; **16:** 213-218. ⁸ PockrosPJ, Esrason KT, Ngyguen C, Duque J, Woods S. Mobilization of malignant ascites with diuretics

is dependent on ascitic fluid characteristics. Gastroenterology 1992; 103: 1302-1306.